

REMARKS

Claims 1-17 are all the claims pending in the application. Claims 7, 8, and 13-17 have been withdrawn from consideration by the Examiner. Reconsideration and allowance of all claims are requested in view of the following remarks.

Claim Rejections under 35 U.S.C. § 102

The Examiner rejected Claims 1-2 and 4-5 under 35 U.S.C. § 102(b) as being anticipated by Japanese Publication No. JP 60112562 A, to Sakai et al. (hereafter referenced as '562). The Applicant respectfully traverses this rejection for at least the following reasons.

'562 discloses winding a web with low tension during an initial stage and thereafter winding the web with "recovered" tension. For instance, an embodiment of the invention is disclosed in the following translated excerpt from '562:

According to an embodiment of the present invention, as shown in Fig. 2, winding of the web is carried out roughly in the following three stages (1) to (3). The winding method is suitably applicable to the case when a relative wide web having the width of 1,000mm or more is wound 1,000 turns or more at a high speed of 30m/min or more.

(1) First Stage

An initial winding period P_1 starts from the beginning of winding the web, and ends, at the latest, at a point of time when the number of turns of the web wound around a core reaches 1/10 of the total number of turns at the end of winding. During the initial winding period P_1 , the web is wound with low winding tension lower than 70% or less of basic winding tension T_1 . Preferably, during the initial winding period P_1 , the web is wound with low winding tension in the range of 20 to 70% of the basic winding tension T_1 . The specific length of the period for winding the web with low tension and the magnitude of the tension may change depending on various factors such as the frictional coefficient, thickness, width, and rigidity of the web, and the winding speed. The optimum values are experimentally determined within the ranges as stated above.

(2) Second Stage

After the winding period P_1 for winding the web with low tension in the first stage, the winding tension is restored to a taper winding tension T_2 corresponding to a web roll diameter at a point of time P_2 when the first stage is finished.

(3) Third Stage

In the period P_3 from the end of the second stage until the end of winding the web, winding of the web is carried out in an ordinary high speed winding method. Various methods such as a taper tension winding method, a constant tension winding method, and a constant torque winding method can be used as the high speed winding method, and a suitable winding method can be selected depending on the type of the web, for example. In particular, the taper tension winding method is suitable. In the taper tension winding method, it is preferable that the winding tension is lowered such that the winding tension at the end of winding is about 50 to 70% of the winding tension at the beginning of the third stage.

(Col. 2, line 8 through col. 4, line 3 of '562; emphasis added.)

A method and apparatus consistent with the present invention comprise winding an elongate film or sheet of paper ("web") 24a, 24b neatly around a core 28a, 28b. The web 24a, 24b is initially wound around the core 28a, 28b under a low tension, thereafter being wound under a tension that progressively increases at a given rate, and then being wound under a tension that decreases from the high tension. The web 24a, 24b thus wound into a roll is not damaged and the roll is in a neatly wound state free of edge undulations or irregularities on its end faces. (Page 42, line 21 through page 43, line 1.)

Contrary to the Examiner's assertion, '562 does not disclose progressively increasing the tension of the web at a predetermined rate until reaching a high tension, as presently claimed. As relied upon by the Examiner, Fig. 3 of '562 discloses an almost-instantaneous stepwise jump in

the tension of the web¹. In addition and with reference to the italicized portions of the above quotation, '562 discloses a discrete point of time (P_2) at which the tension is restored after an initial low tension winding period is over. Therefore, '562 does not disclose a progressive increase in the tension of the web, and the Applicant respectfully requests that the rejection of Claims 1-2 and 4-5 under 35 U.S.C. § 102(b) be withdrawn accordingly.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejected Claims 3 and 6 under 35 U.S.C. § 103(a) as being unpatentable over '562, noting that it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the low tension as claimed. Claims 3 and 6 respectively depend upon Claims 1 and 4, and are patentable for the reasons set forth above based on their dependency, as well as the recitations set forth therein.

The Examiner rejected Claims 9-12 under 35 U.S.C. § 103(a) as being unpatentable over '562 in view of U.S. Patent No. 4,238,084 to Kataoka (hereafter referenced as '084). As noted above, the Examiner's attempted rejection using '562 is deficient, and '084 does not correct this deficiency. Therefore, Claims 9 and 11 are patentable for at least reasons similar to those set forth above. Additionally, each of Claims 10 and 12 depends upon one of Claims 9 and 11, all of which the Applicant submits are allowable over the art of record.

¹ The Applicant notes that the x-axis of Fig. 3 of '562 represents the number of turns of the web wound around a core. The quoted portion of '562 references Fig. 2 instead, in which the x-axis represents a time of winding. However, the Applicant submits that this difference is not material to the present discussion because the time of winding is in direct proportion to the number of turns in the '562 system.

Accordingly, the Applicant respectfully requests that the rejection of Claims 3, 6, and 9-12 under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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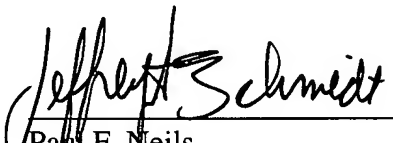
Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

 #41,574
for Paul F. Neils
Registration No. 33,102

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